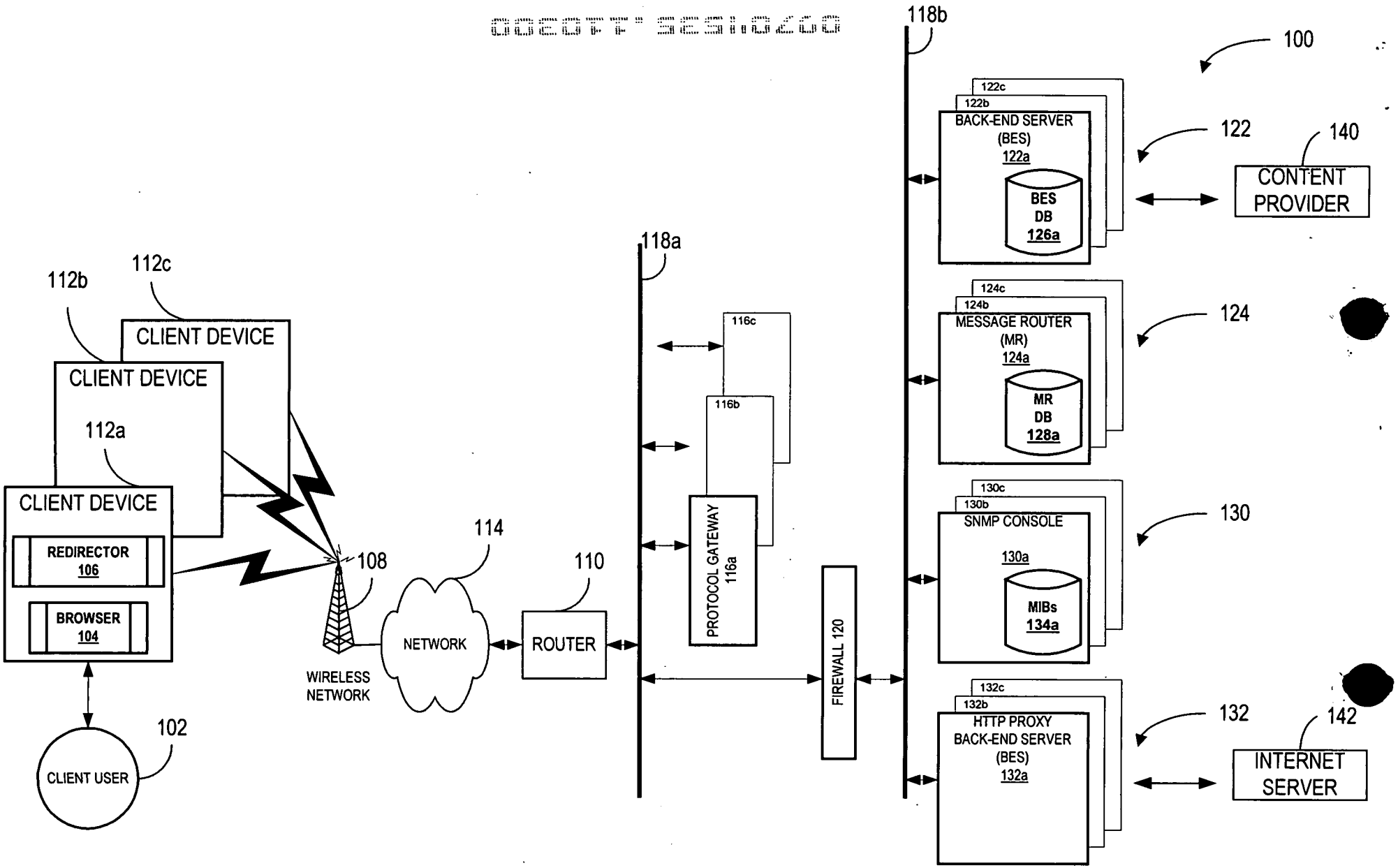

100
118b
122c
122b
BACK-END SERVER
(BES)
122a
BES
DB
126a
122
140
CONTENT
PROVIDER
118a
112b
112c
CLIENT DEVICE
CLIENT DEVICE
112a
CLIENT DEVICE
REDIRECTOR
106
BROWSER
104
116c
116b
PROTOCOL GATEWAY
116a
124c
124b
MESSAGE ROUTER
(MR)
124a
MR
DB
128a
124
130c
130b
SNMP CONSOLE
130a
MIBs
134a
130
108
114
110
WIRELESS
NETWORK
NETWORK
ROUTER
FIREWALL 120
132c
132b
HTTP PROXY
BACK-END SERVER
(BES)
132a
132
142
INTERNET
SERVER
102
CLIENT USER

FIG. 1A

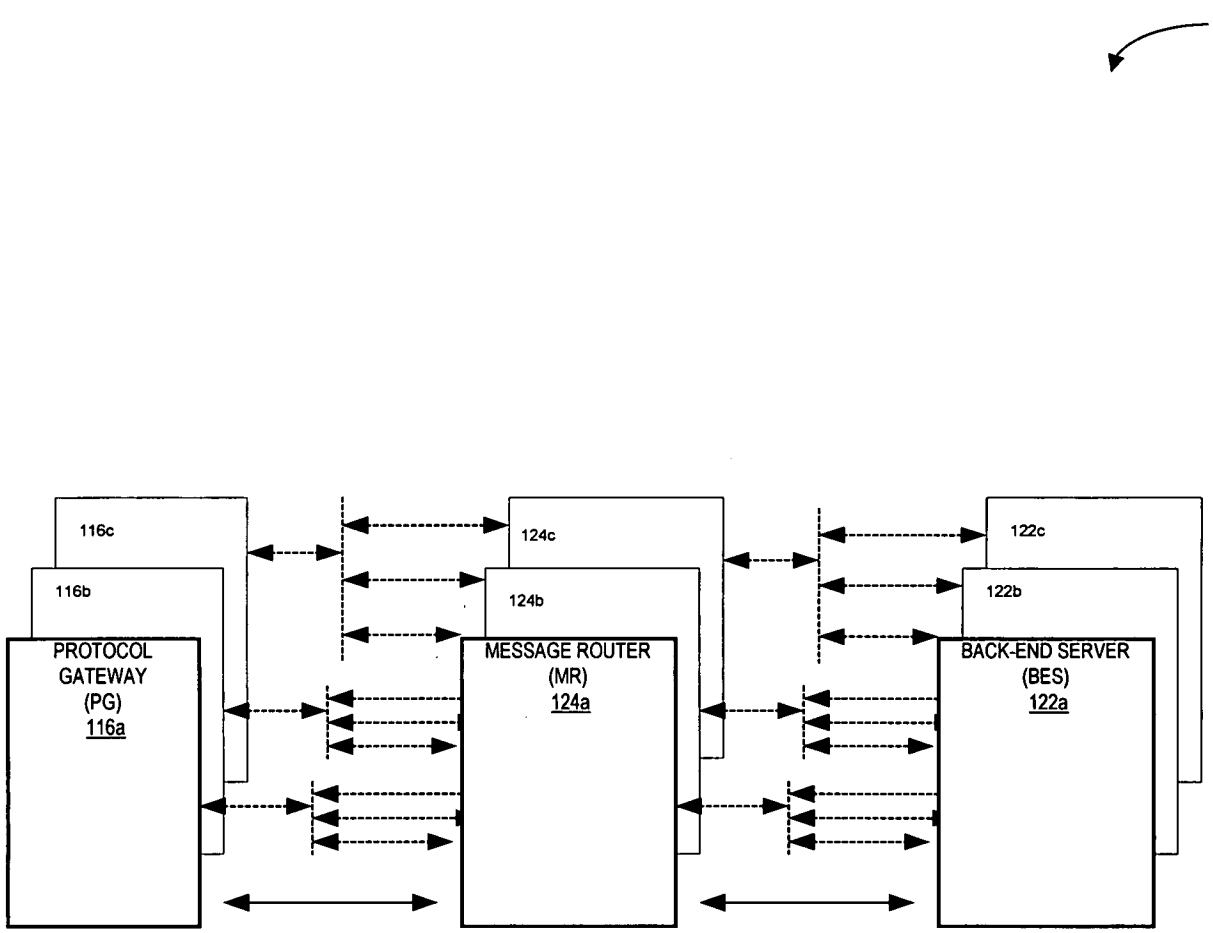
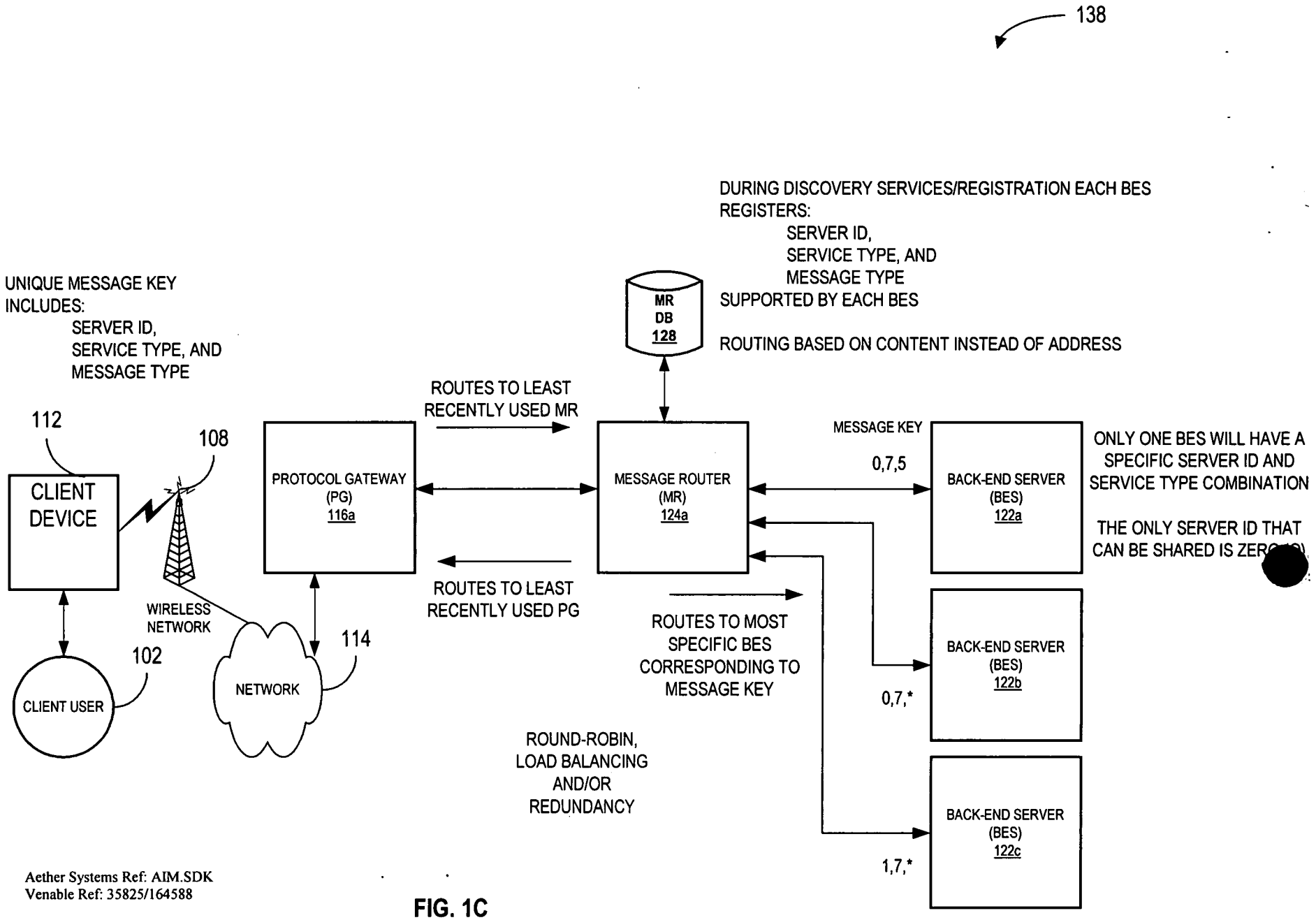

136
116c
116b
PROTOCOL
GATEWAY
(PG)
116a
124c
124b
MESSAGE ROUTER
(MR)
124a
122c
122b
BACK-END SERVER
(BES)
122a

FIG. 1B



Aether Systems Ref: AIM.SDK
Venable Ref: 35825/164588

FIG. 1C

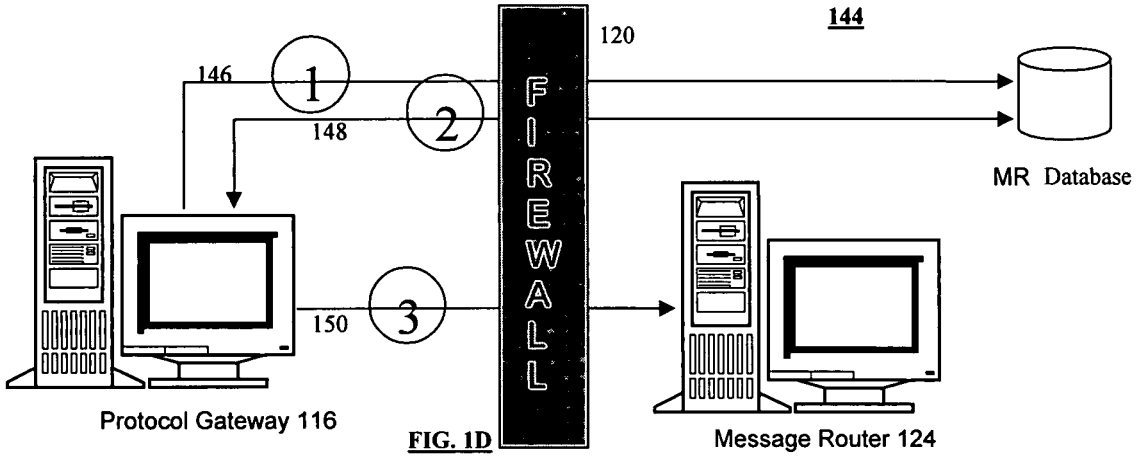

144
120
146
1
148
2
FIREWALL
MR Database
150
3
Protocol Gateway 116
Message Router 124

FIG. 1D

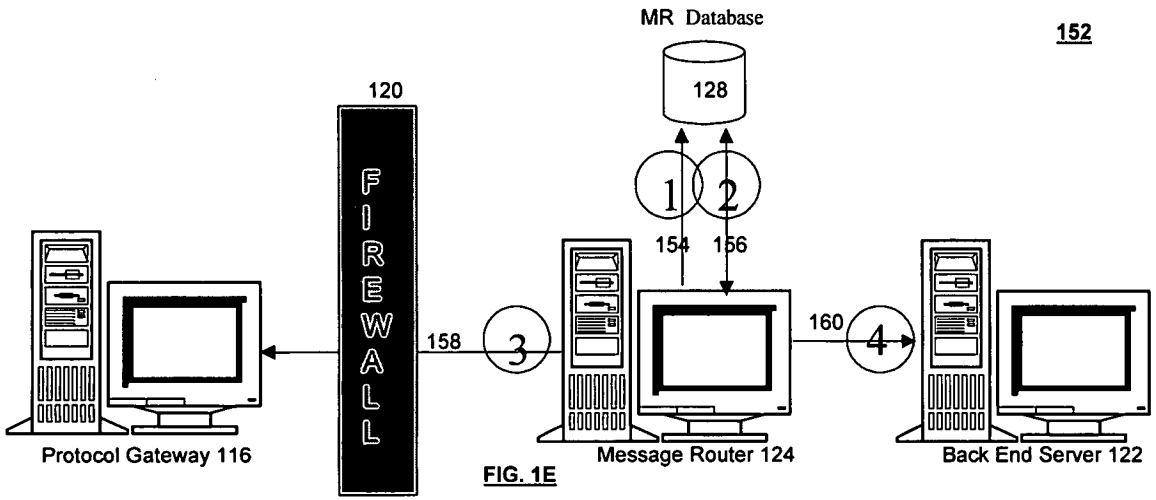

MR Database
152
128
120
FIREWALL
1
2
154
156
158
3
160
4
Protocol Gateway 116
Message Router 124
Back End Server 122

FIG. 1E

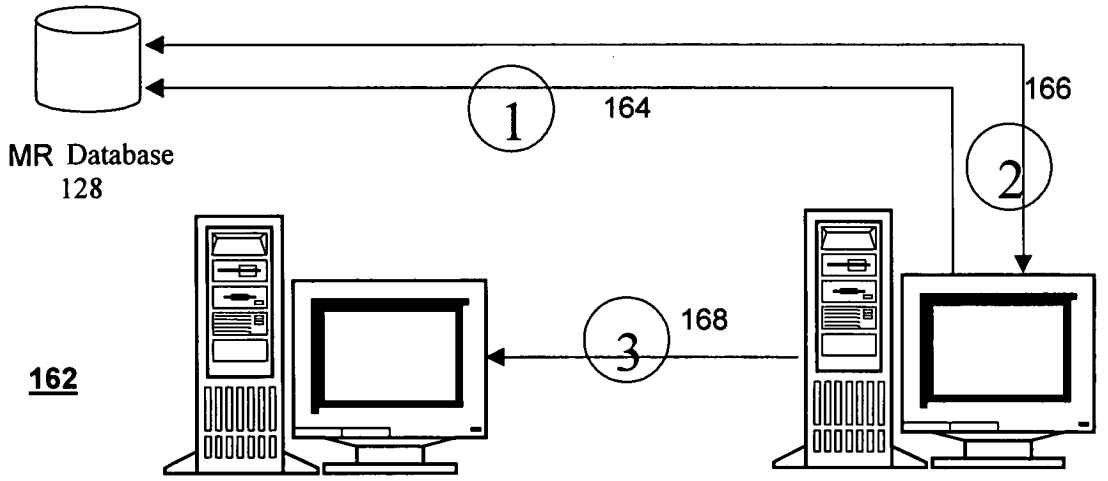

MR Database
128
1
164
166
2
168
3
162
Message Router 124
Back End Server 122

FIG. 1F

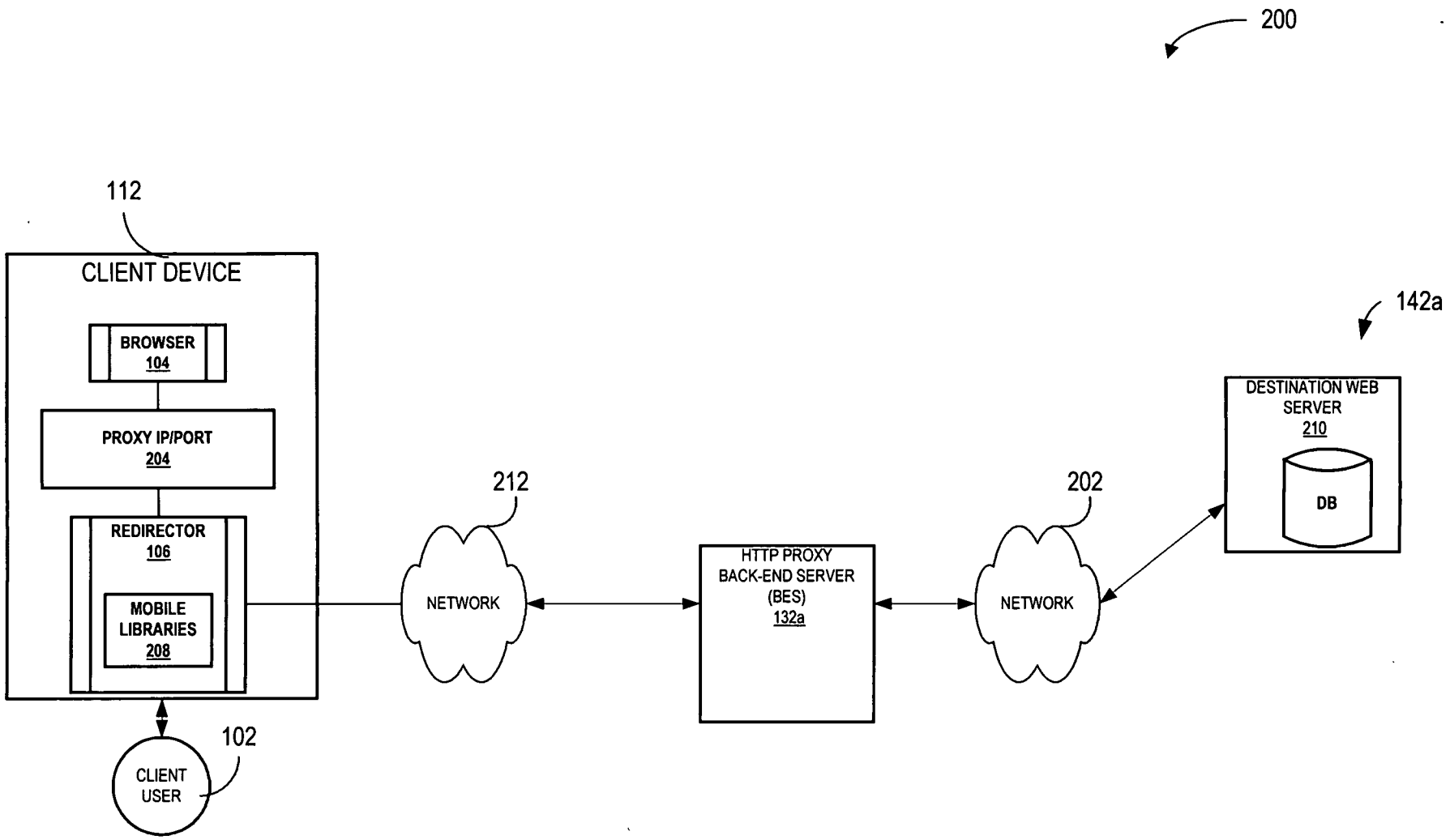

200
112
CLIENT DEVICE
BROWSER
104
PROXY IP/PORT
204
REDIRECTOR
106
MOBILE
LIBRARIES
208
CLIENT
USER
102
212
NETWORK
HTTP PROXY
BACK-END SERVER
(BES)
132a
202
NETWORK
142a
DESTINATION WEB
SERVER
210
DB

FIG. 2

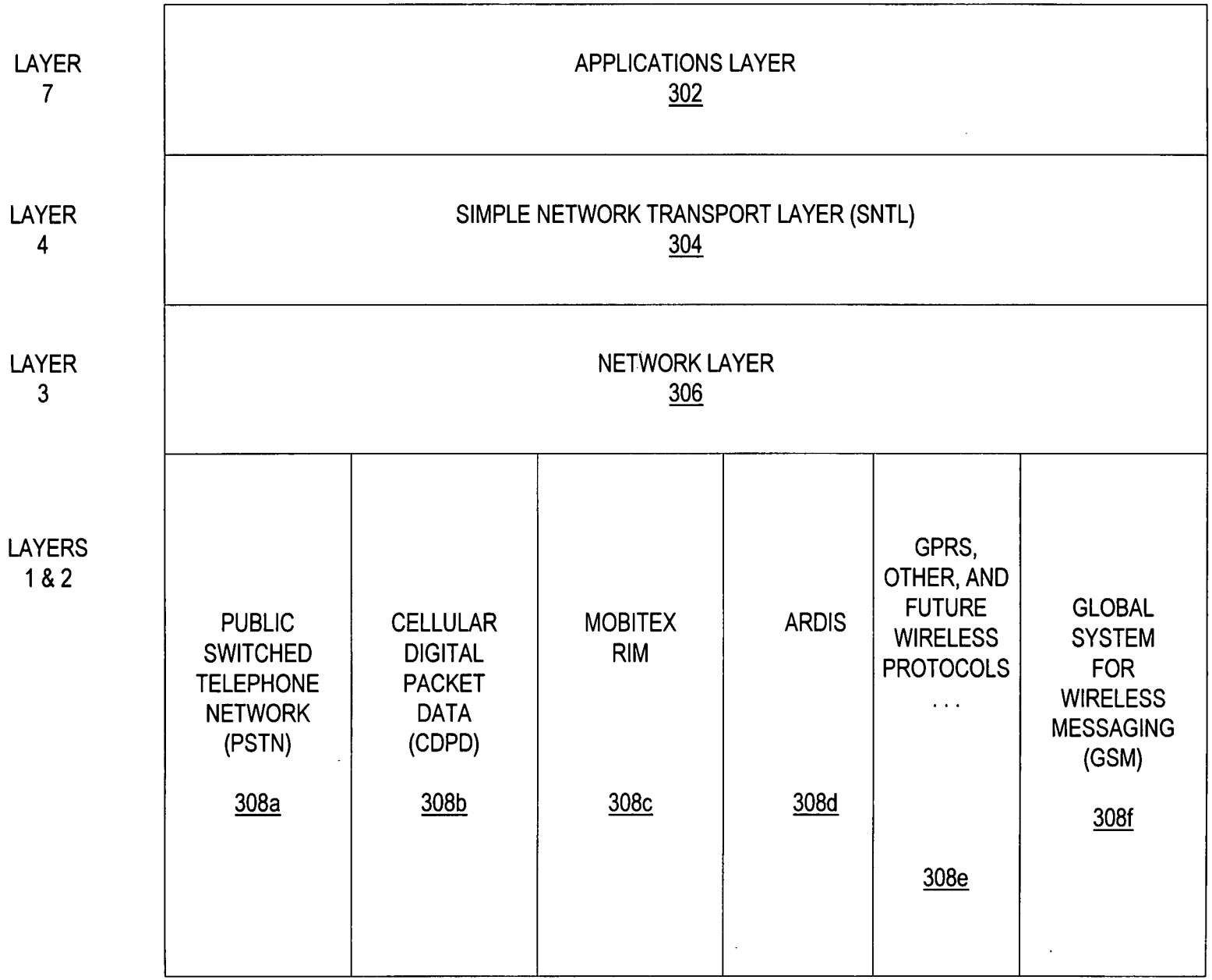

300
LAYER 7
APPLICATIONS LAYER
302
LAYER 4
SIMPLE NETWORK TRANSPORT LAYER (SNTL)
304
LAYER 3
NETWORK LAYER
306
LAYERS 1 & 2
PUBLIC SWITCHED TELEPHONE NETWORK (PSTN)
308a
CELLULAR DIGITAL PACKET DATA (CDPD)
308b
MOBITEX RIM
308c
ARDIS
308d
GPRS, OTHER, AND FUTURE WIRELESS PROTOCOLS . . .
308e
GLOBAL SYSTEM FOR WIRELESS MESSAGING (GSM)
308f

FIG. 3

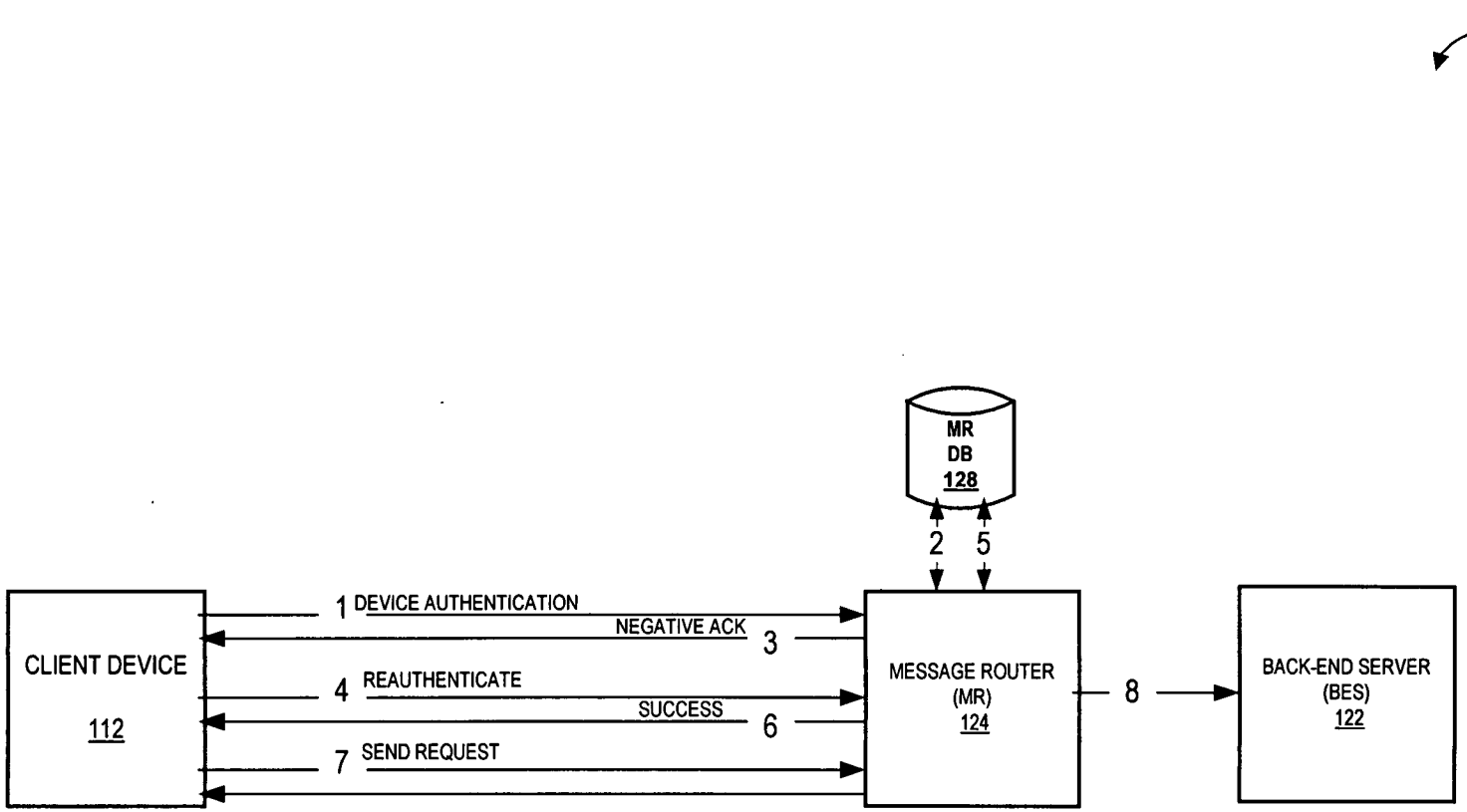
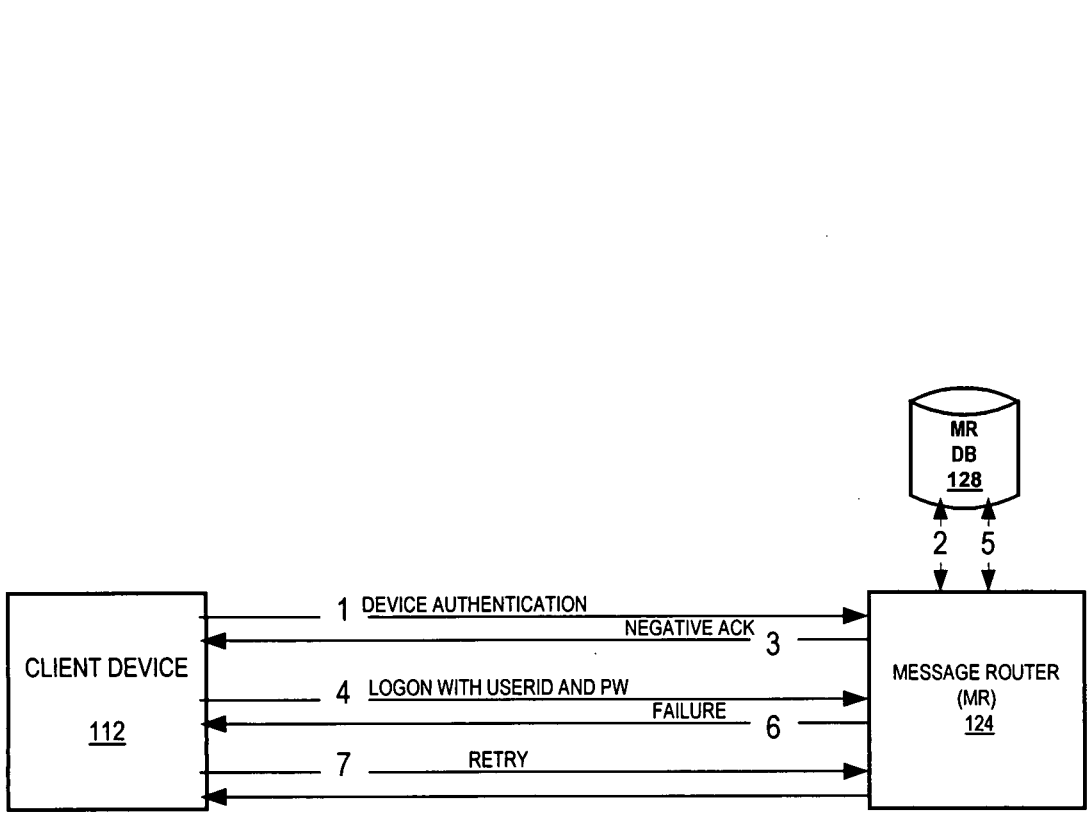
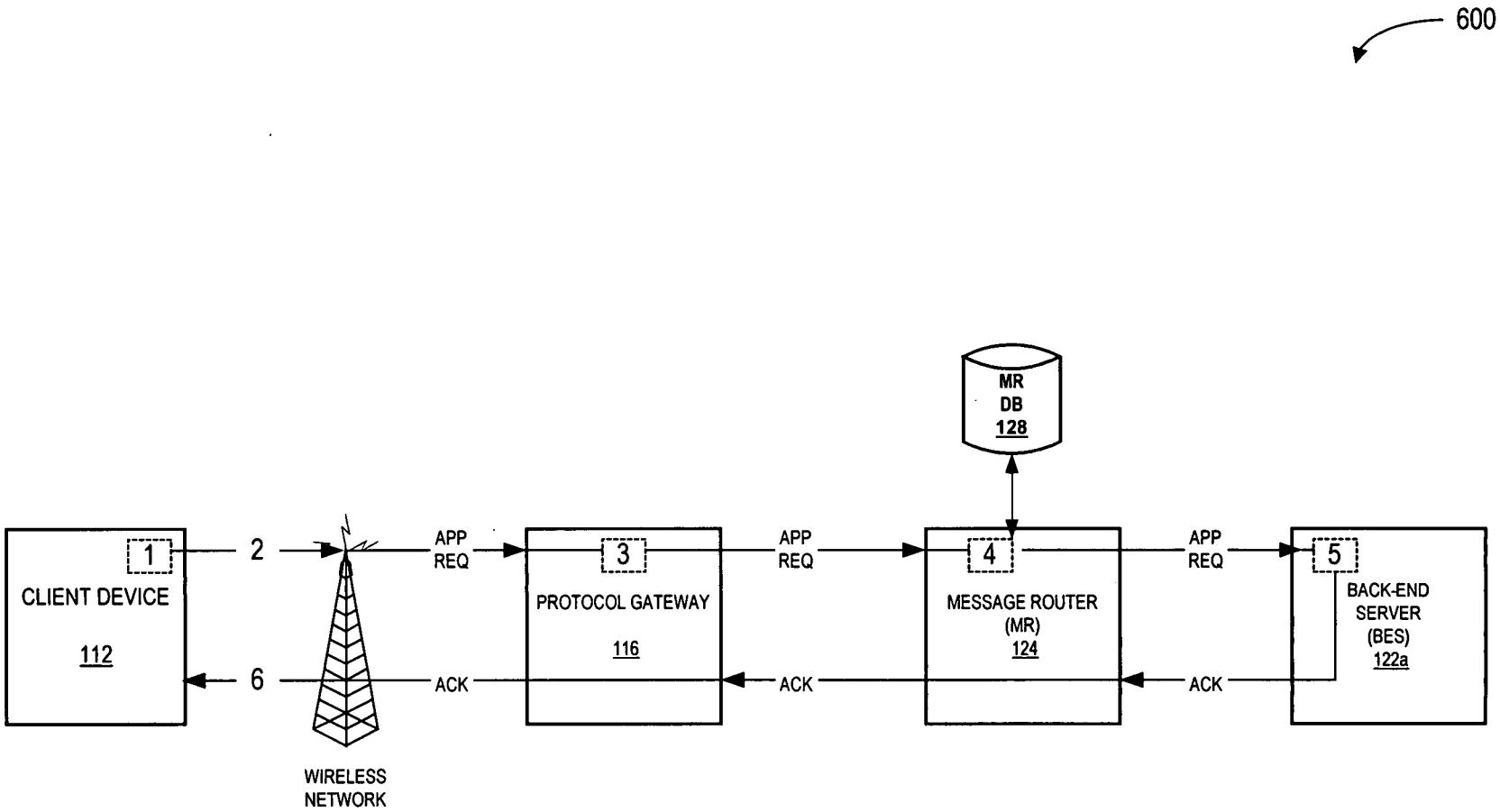

400
MR
DB
128
2
5
CLIENT DEVICE
112
1 DEVICE AUTHENTICATION
NEGATIVE ACK
3
4 REAUTHENTICATE
SUCCESS
6
7 SEND REQUEST
MESSAGE ROUTER
(MR)
124
8
BACK-END SERVER
(BES)
122

FIG. 4



Aether Systems Ref: AIM.SDK
Venable Ref: 35825/164588

FIG. 5



Aether Systems Ref: AIM.SDK
Venable Ref: 35825/164588

FIG. 6A

602

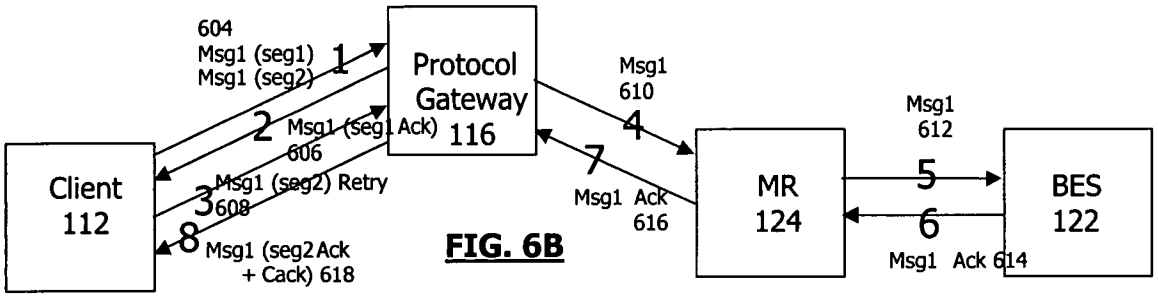

604
Msg1 (seg1)
Msg1 (seg2)
1
Protocol
Gateway
116
Msg1
610
4
Msg1
612
Client
112
2
Msg1 (seg1 Ack)
606
3
Msg1 (seg2) Retry
608
7
Msg1 Ack
616
MR
124
5
6
BES
122
8
Msg1 (seg2 Ack
+ Cack) 618
Msg1 Ack 614

FIG. 6B

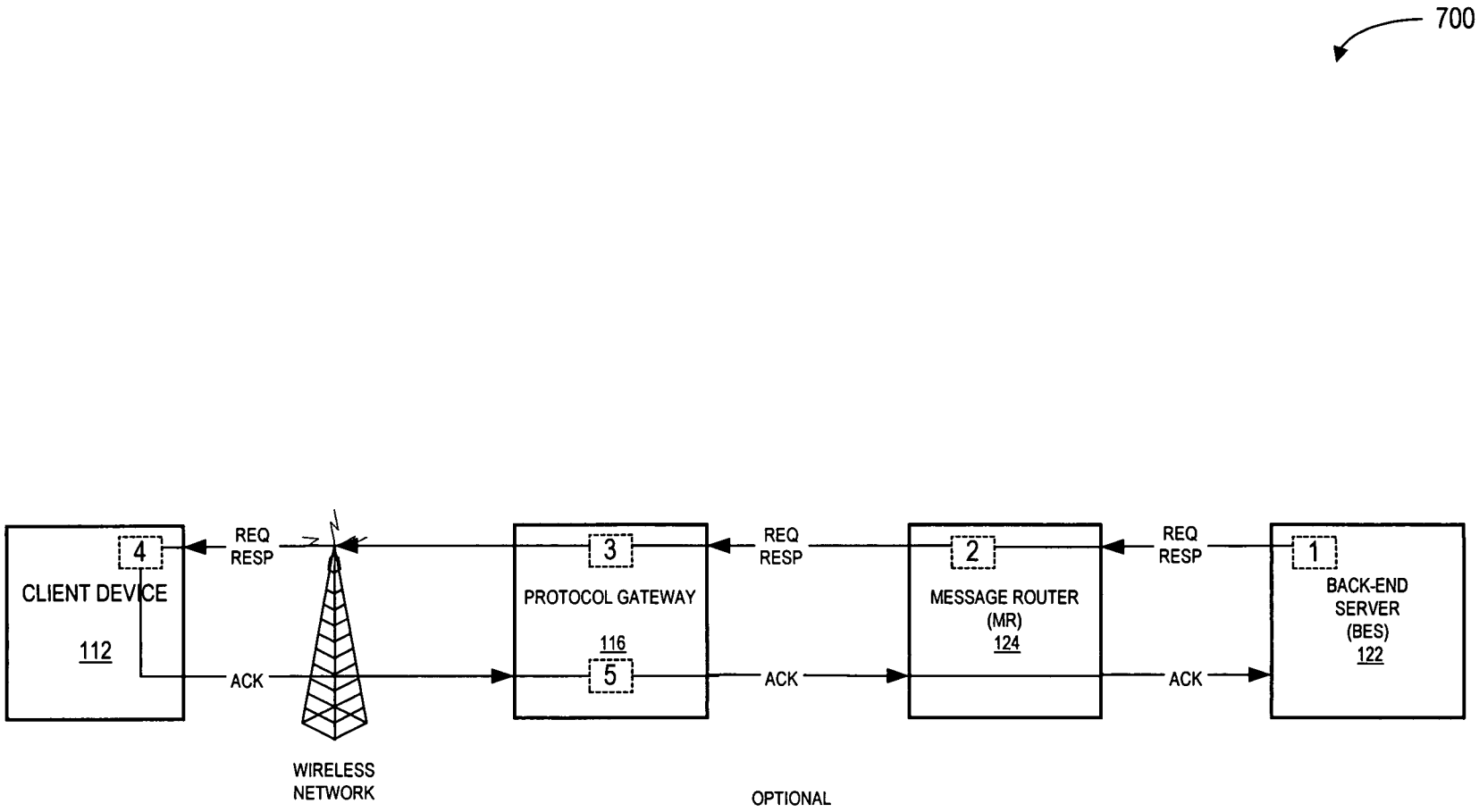

700
4
CLIENT DEVICE
112
REQ
RESP
ACK
WIRELESS
NETWORK
3
PROTOCOL GATEWAY
116
5
REQ
RESP
ACK
2
MESSAGE ROUTER
(MR)
124
REQ
RESP
ACK
1
BACK-END
SERVER
(BES)
122
OPTIONAL

FIG. 7A

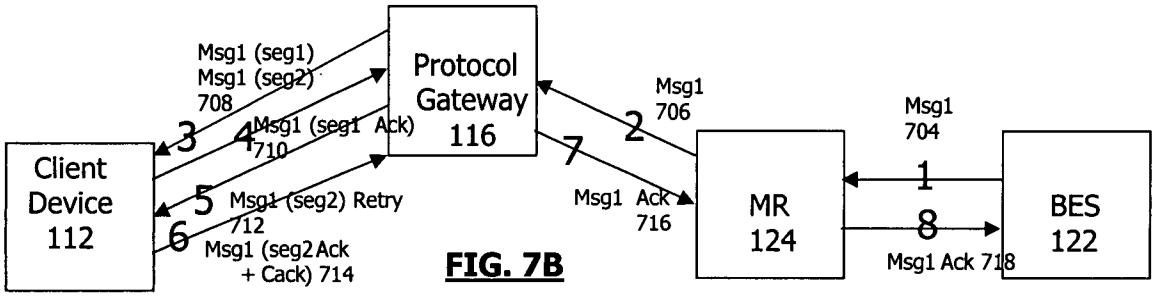

702
Client Device 112
Protocol Gateway 116
MR 124
BES 122
Msg1 (seg1)
Msg1 (seg2)
708
Msg1 (seg1 Ack)
710
Msg1 (seg2) Retry
712
Msg1 (seg2 Ack + Cack) 714
Msg1
706
Msg1 Ack
716
Msg1
704
Msg1 Ack 718
1
2
3
4
5
6
7
8

FIG. 7B

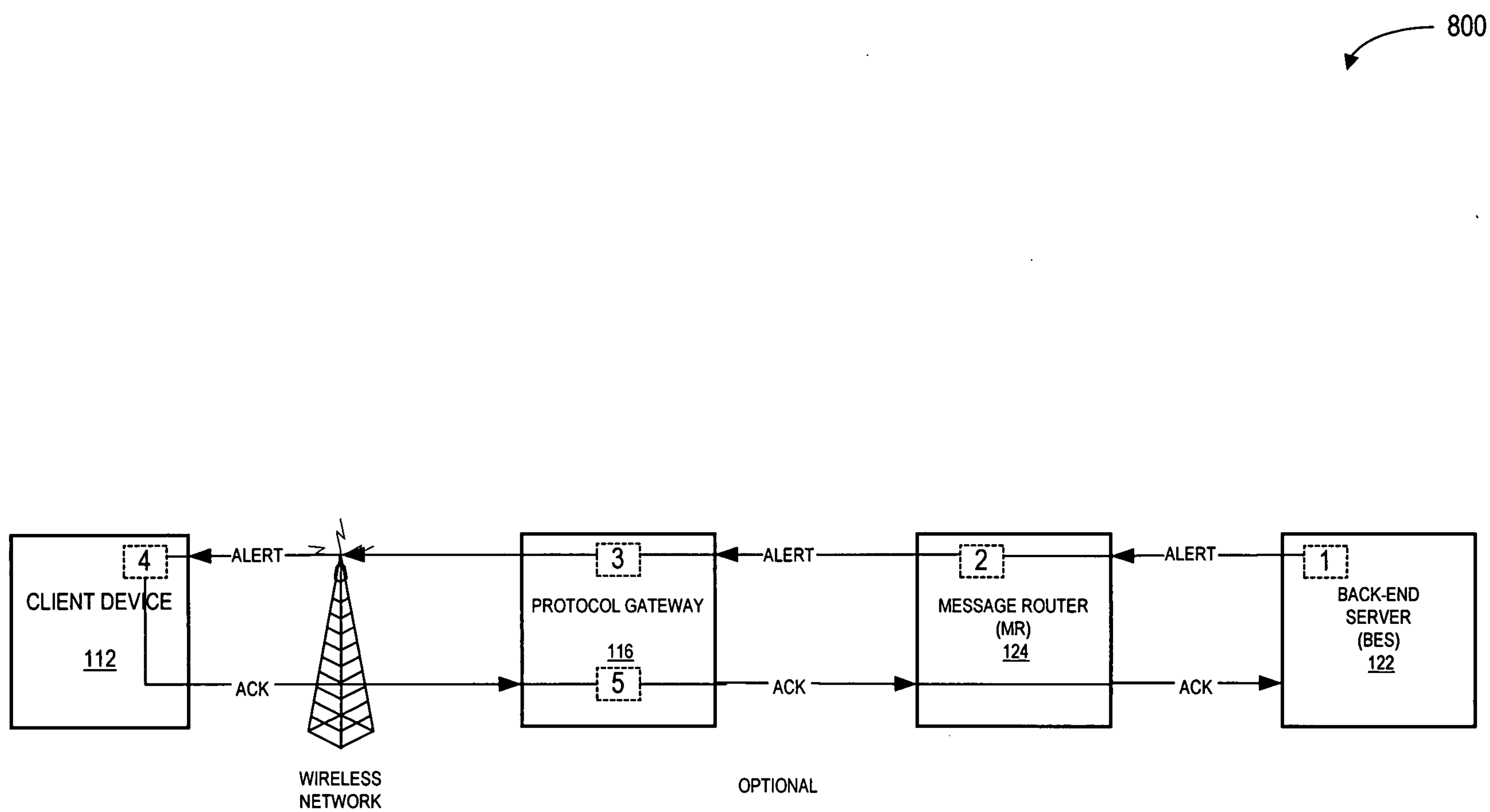


FIG. 8A

Aether Systems Ref: AIM.SDK
Venable Ref: 35825/164588

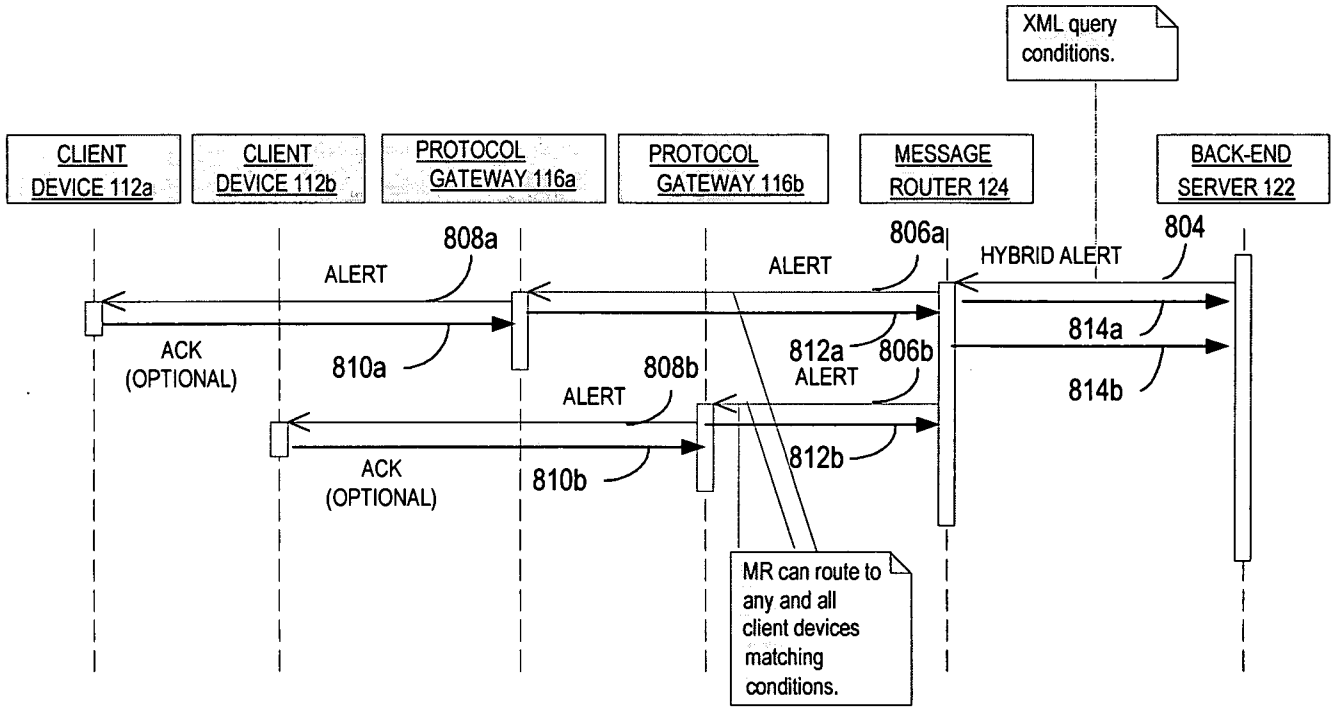

XML query conditions.
CLIENT DEVICE 112a
CLIENT DEVICE 112b
PROTOCOL GATEWAY 116a
PROTOCOL GATEWAY 116b
MESSAGE ROUTER 124
BACK-END SERVER 122
808a
ALERT
806a
ALERT
HYBRID ALERT
804
ACK (OPTIONAL)
810a
812a
806b
ALERT
814a
814b
808b
ALERT
ACK (OPTIONAL)
810b
812b
MR can route to any and all client devices matching conditions.

FIG. 8B

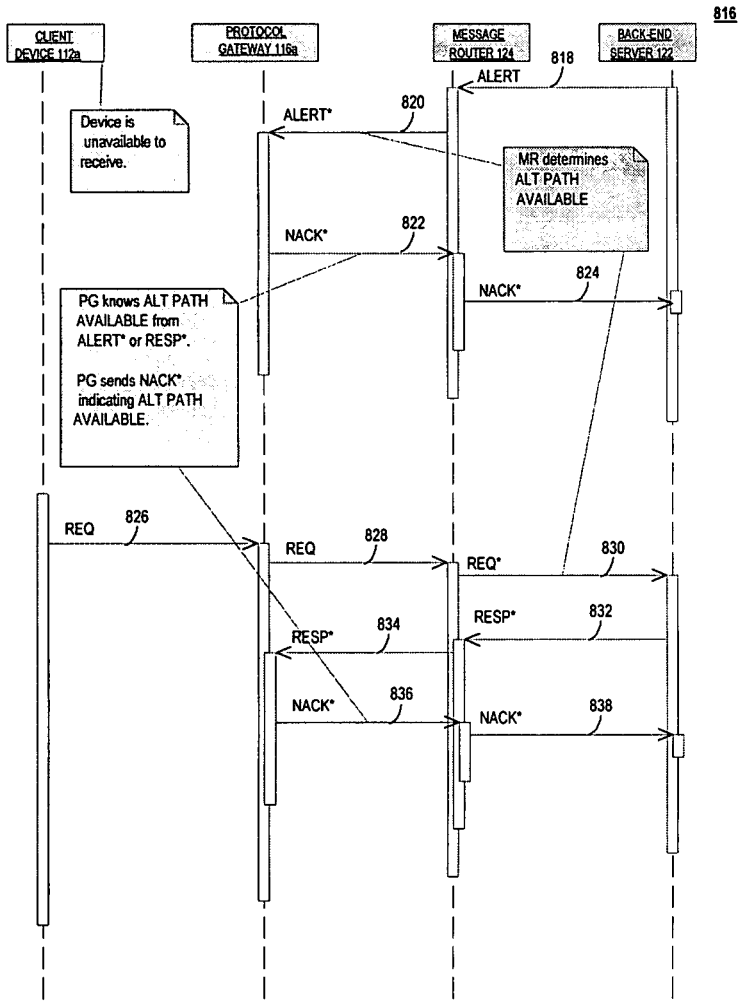

816
CLIENT DEVICE 112a
PROTOCOL GATEWAY 116a
MESSAGE ROUTER 124
BACK-END SERVER 122
818
ALERT
820
ALERT*
Device is unavailable to receive.
MR determines ALT PATH AVAILABLE
822
NACK*
824
NACK*
PG knows ALT PATH AVAILABLE from ALERT* or RESP*.
PG sends NACK* indicating ALT PATH AVAILABLE.
826
REQ
828
REQ
830
REQ*
832
RESP*
834
RESP*
836
NACK*
838
NACK*

FIG. 8C

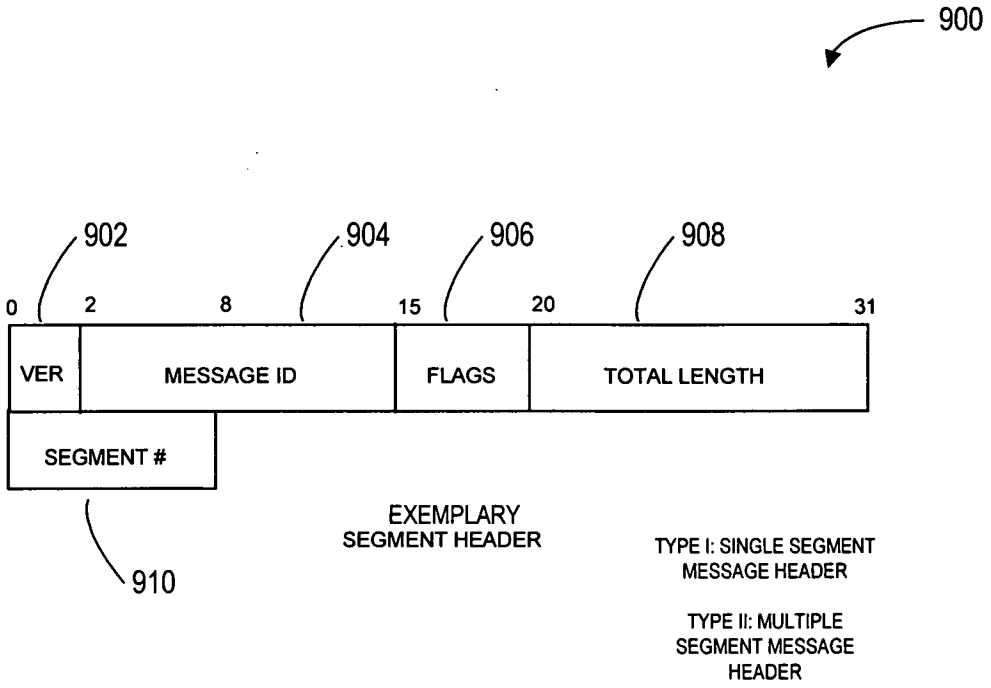

900
902
904
906
908
0
2
8
15
20
31
VER
MESSAGE ID
FLAGS
TOTAL LENGTH
SEGMENT #
910
EXEMPLARY
SEGMENT HEADER
TYPE I: SINGLE SEGMENT
MESSAGE HEADER
TYPE II: MULTIPLE
SEGMENT MESSAGE
HEADER

FIG. 9